

collection of notes by Henry H. Howorth of the several observations that have established the fact of the rising of the circumpolar land.

We have now passed in review the chief portion of this Manual, which occupies 500 out of its 750 pages, and relates to that portion of the Arctic regions whither the explorers are in the first instance bound. The remaining portion of the Natural History division—occupied with Parry Island and East Greenland—consists of shorter papers and far barer catalogues. These perhaps require no observations beyond noticing the fact—recently pointed out also by Mr. De Rance in our columns—that the various geological periods are much better represented in these latter districts, there being Silurian, Carboniferous, Triassic, and Jurassic, as well as Cretaceous and Tertiary rocks; and consequently we have lists of fossils supplied with which any that may be discovered may be compared. The last of the Natural History series is an extract from Mr. Woodward's paper on Glaciation, the object of the insertion of which, as it is entirely theoretical, it is difficult to understand, unless it be to give the explorers some idea of the kind of questions on which some of their geological and glacial observations may be expected to throw light.

There are two things that strike one in reading these long catalogues—(1), that he must be a well-informed naturalist to whom many of the names which belong to all classes and kingdoms of life are anything more than names; and (2), arising from this, what an advantage there is in having specific names at least as far as possible descriptive.

The second part of the Manual, relating to Physics, requires of course less detail, and is included in a far smaller number of pages. It is not constructed on exactly the same plan as the first part, but consists in a great degree in descriptions of the observations and results, instead of reprints of the original papers; nor is it so exhaustive. It is divided into eight portions, relating respectively to Meteorology, Temperature of the Sea, Formation and Composition of Sea-water Ice, Tides and Currents, Geodesy and Pendulum Experiments, Observations on Refraction and on Air, Terrestrial Magnetism, and the Aurora Borealis. Under the head of Meteorology we have a few scattered notes on the results of the numerous previous expeditions with the thermometer, barometer, &c., and a valuable table on the mean temperatures of various stations for the several months of the year. The information as to the temperature of the sea is still more meagre, and it seems to us that more might have been included with advantage. The papers selected on the Physical Properties of Ice are extremely suggestive and valuable, consisting partly of observations in Arctic regions as to the freezing-points of sea-water, and the compositions of the resulting ice and the remaining liquid, and partly of similar experiments in the laboratory.

The information also on the tides and currents is pretty full, showing what methods have been adopted in various expeditions for determining the former accurately and with what results. There are also papers of suggestions as to the probable directions and amounts of both, and the best places for observation, and on the Meteorology and Hydrography of the Austro-Hungarian North Polar Expedition. The part on Magnetism is on the same

model as the last mentioned, and is equally, if not more valuable. The last chapter, on the Aurora Borealis, is the best of all. Besides the ordinarily phenomenal observations already made, great attention is naturally paid to the spectrum of the Aurora, its connection with electrical discharges, together with Angström's views of its origin as explained in NATURE (vol. x. p. 246), and the opinions of Prof. Herschel and Mr. Capron, as well as those of MM. Lemström and Wijkander, deduced from observations made by them in the different Swedish expeditions, all of which are here given as fully as possible.

Such is the book with which, in addition to all others, the Arctic explorers are supplied. It is a library in one volume such as one does not often see. The mass of material it contains is something marvellous, and all is condensed as much as is advisable. The compilers must have had hard work, but they may congratulate themselves on the result. They have practically said to the Arctic voyagers—"This is what we have; go and obtain more for us." May they be successful, and return with a full cargo of information, which, if it were packed as tight as in this Manual, would not take up much room in comparison with its high value.

#### LAWSON'S "NEW GUINEA"

*Wanderings in the Interior of New Guinea.* By Capt.

J. A. Lawson. With Frontispiece and Map. (Chapman and Hall, 1875.)

IT is not often that a work of fiction calls for notice in the pages of NATURE; but we have here an exceptional case. This book has been favourably noticed in some of the daily and weekly papers as a genuine narrative of travel and an addition to our knowledge of an almost unknown region, and it therefore becomes a duty to inform our readers that it is wholly fictitious. It is not even a clever fiction; for although the author has some literary skill and some notion of the character of savages, he is so totally ignorant of the geography and the natural history of the country he pretends to have explored, and so completely unacquainted with the exigencies of travel and exploration in trackless equatorial forests, as to crowd his pages with incidents totally unlike any that occur to the actual explorer, and with facts altogether opposed to some of the best established conclusions of physical geography. We proceed to give proofs of the accuracy of these statements. First, as to his geography. He starts from a point a little to the east of Torres Straits, of which he is so injudicious as to give the latitude and longitude (both to seconds) from his own observations. He also gives a map of his route, but without scale or meridian line. He describes himself, however, as travelling generally northwards with only such divergences as the country necessitated, and we may therefore take it that his route was nearly north, as it should have been to cross the island. But although he gives no scale to his map, he (again injudiciously) gives the dimensions of a large lake, along one side of which he travelled, as "between 60 and 70 miles long, 15 to 30 broad," which being laid down on his map furnishes an excellent scale, and shows that the total distance from his starting point in a straight line to the place he professes to have reached must have been somewhere between 560 and 620 miles.

Now, the total width of New Guinea is here 380 miles only, and the longest distance possible to go without reaching the sea is just about 620 miles, which takes you to the shores of Geelvinck Bay.

The centre of New Guinea is about 6° S. of the equator, and is almost certainly a forest region throughout and abundantly watered. In this equatorial belt all round the globe the temperature is not excessive, 96° or 98° being the extreme daily limit, while the nights are almost invariably cool (70° to 76°). The greater part of the country here described is, however, said to be open plains with only occasional forest tracts; water was not found for a whole day's journey, even at the foot of a mountain range 10,000 feet high, and the ordinary daily temperature is said to have reached 106° to 109° and 115° in the shade. He describes a terrific storm of hailstones as large as hens' eggs, not on the mountains, but in the low country about 7° S. latitude.

His mode of travelling is as extraordinary as his geography. After the statement that in the tropics "early morning and evening are the only times when it is possible to travel," he assures us that he started at 3 A.M., and in the evening continued his journey till 9 P.M. This gives two-and-a-half hours in the morning and the same at night of total darkness, in an unknown, pathless, tropical country, and he even ascends part of a dangerous mountain full of fissures and huge rocks, till nine o'clock at night! The country, too, was full of venomous snakes; and huge scorpions a foot long, whose sting was certain death, were very abundant; and as these last are nocturnal animals, travelling in darkness among fissured rocks and dense vegetation must have been exciting. But then we are told that he carried a lanthorn, and by means of this artificial illumination it is to be supposed the whole party made good progress and baffled the scorpions.

More marvellous still is the ascent of Mount Hercules, 32,783 feet high. He starts with one native from the foot of the mountain at 4 A.M., carrying "food, water, arms, and blankets," and ascends 14,000 feet by nine o'clock! At 15,000 feet they came to snow, but continued on for many thousand feet more, and by 1 P.M. had reached a height of 25,314 feet, the temperature being 22° below freezing. This is certainly good climbing, as it is just 4,000 feet higher than Chimborazo from the sea-level, and more than twice as high as Mont Blanc is above Chamouni. The Alpine Club must hide their diminished heads after this. Of course, having turned back at one o'clock, our travellers arrived safely at their camp at 7.30 P.M. A tinted view of this wonderful mountain forms the frontispiece to the book.

Having digested this Alpine feat as best we may, let us turn to Capt. Lawson's account of the natural history of the island. It may be premised, for the benefit of non-zoological readers, that New Guinea belongs to the Australian region, and that with the exception of bats and a wild pig, all the known mammalia are marsupials, four species of kangaroos, several species of *Cuscus* (an animal somewhat like an opossum), and some smaller marsupial forms being known. The coasts have been visited for centuries, and considerable excursions have been made in the interior of the northern part of the island, while the southern portions have also been several times visited by our various surveying parties. The islands all round

it agree in this exclusion of all mammalia but marsupials. But Capt. Lawson tells us quite a different tale. He met with no solitary kangaroo or *Cuscus* all through New Guinea, but he everywhere encountered deer of several species, wild buffaloes, wild goats, wild cattle of a new species, hares, foxes, a wonderful new tiger, long-tailed monkeys, and huge man-like apes! Of birds we have, quite correctly, Cockatoos and Birds of Paradise, but along with these, pheasants, woodpeckers, and vultures, the two former not known within a thousand, the latter within two thousand miles of New Guinea. The natives, too, have great herds of hump-backed cattle, and far in the interior many of them speak Dutch!

Hardly less absurd are Capt. Lawson's wonderful hunting feats and hairbreadth escapes. The monkeys of New Guinea seem remarkable for waiting to be shot at, although, as the natives have guns and shoot them for food, they would in other countries have become wary. Yet our author goes out with a native chief to shoot monkeys, and in a couple of hours they bag a score and wound several others. Again, in an hour's shooting he kills "thirty-nine ducks, five ibises, two storks, seven kingfishers, and three new birds." The deer are seen in "herds of two or three hundred," the wild goats generally go in "flocks of seventy or eighty!" A herd of at least ten thousand buffaloes was seen, and in a single tree more than a thousand hanging nests of one species of bird were counted, each nest, too, containing several distinct families. Capt. Lawson is tossed and then trampled on by a wild buffalo, and when recovered so that he could "walk a few paces, leaning on the arm of one of his attendants," he goes fishing, and in two hours "pulled out over a hundred fish, the largest a yard long," not to mention many large fish which broke away from the hook. A huge New Guinea tiger gets him in its clutches, but though the animal was larger than a Bengal tiger, he of course escapes, though "drenched with the Moolah's blood." He preserves the skin, which is "marked with black and chestnut stripes on a white ground," and this skin is "one of the few specimens he has succeeded in bringing to Europe." Wonderful birds, snakes, and insects are also described, sometimes very minutely, but not one of them at all resembles any of the known denizens of New Guinea. Here is a butterfly for example: "The largest specimen I obtained, whose wings measured exactly twelve inches across, was black, with a red border to the wings and red bands round the body. In the centre of each wing were three light blue spots arranged in a triangle. The body of this fly was as thick as my thumb, and six inches in length. The feelers were twelve inches in length, and curled into three coils."

As if to complete his own refutation, our author states that he returned to the coast with a party of natives who were conveying, among other merchandise, skins of "birds, monkeys, &c.," and that two or three Dutch traders, as well as many Malays and Chinese, come there every year. This part of New Guinea is therefore in constant communication with the rest of the world, yet the existence in the island of monkeys, apes, deer, buffaloes, goats, and tigers, has remained totally unknown till the secret was revealed to us by this enterprising and veracious traveller.

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